GNU Spread Sheet Widget

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GNU

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What is it?

- It's a GNU program.
- It's a library.
- It's a Gtk+ widget.
- It's a viewer for tabular data.
- It's an editor interface.

It is *not*:

- A spreadsheet.

What does it look like?

Case	sex	height	weight	temperature	Var	Var	Var	Var
1	Male	1799	90.9	37.53				
2	Male	1799	90.4	37.33				
3	Male	1800	88.9	37.03				
4	Male	1799	90.4	37.68				
5	Male	1645	92.1	36.68				
6	Male	1801	88.9	37.12				
7	Male	1800	89.5	36.10				
8	Male	1799	90.3	32.59				
9	Male	1800	91.0	37.60				
10	Male	1799	89.0	33.61				
11	Male	1801	90.5	34.42				

Features

- Unlimited number of rows/columns.
- Operations are O(1).
- Memory allocated is O(1).
  - Inserting.
  - Deleting.
  - Resizeing.
- “Clipboard” and primary selection friendly.
- “Split” window.
- LTR friendly.
- A few bells and whistles . . .

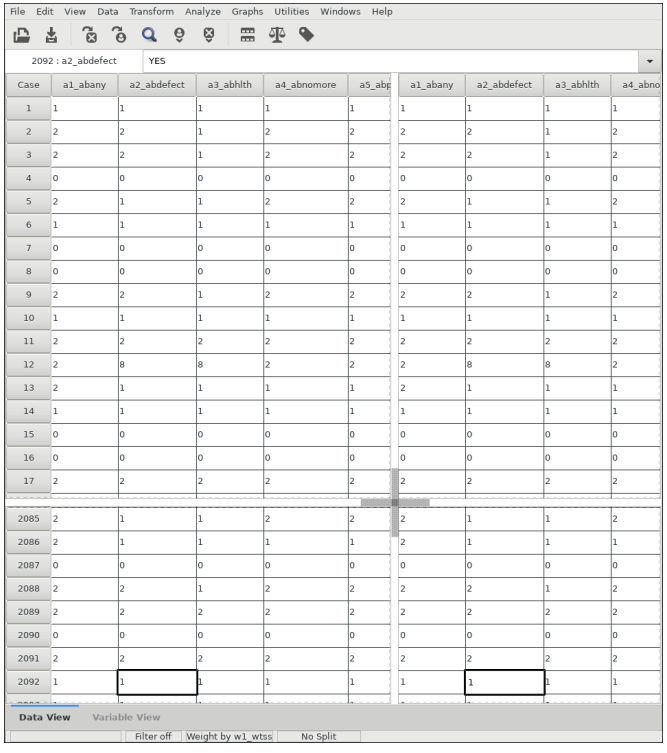
Why is it?
My search for a spreadsheet widget

In GNU PSPP, we provide a spread sheet like user interface.
PSPP is a program for statistical analysis. It is not a spreadsheet.
Previous attempts to provide the sheet view include:

- Gnumeric, Libreoffice.
- GtkSheet.
- GtkTreeView.

Split Window

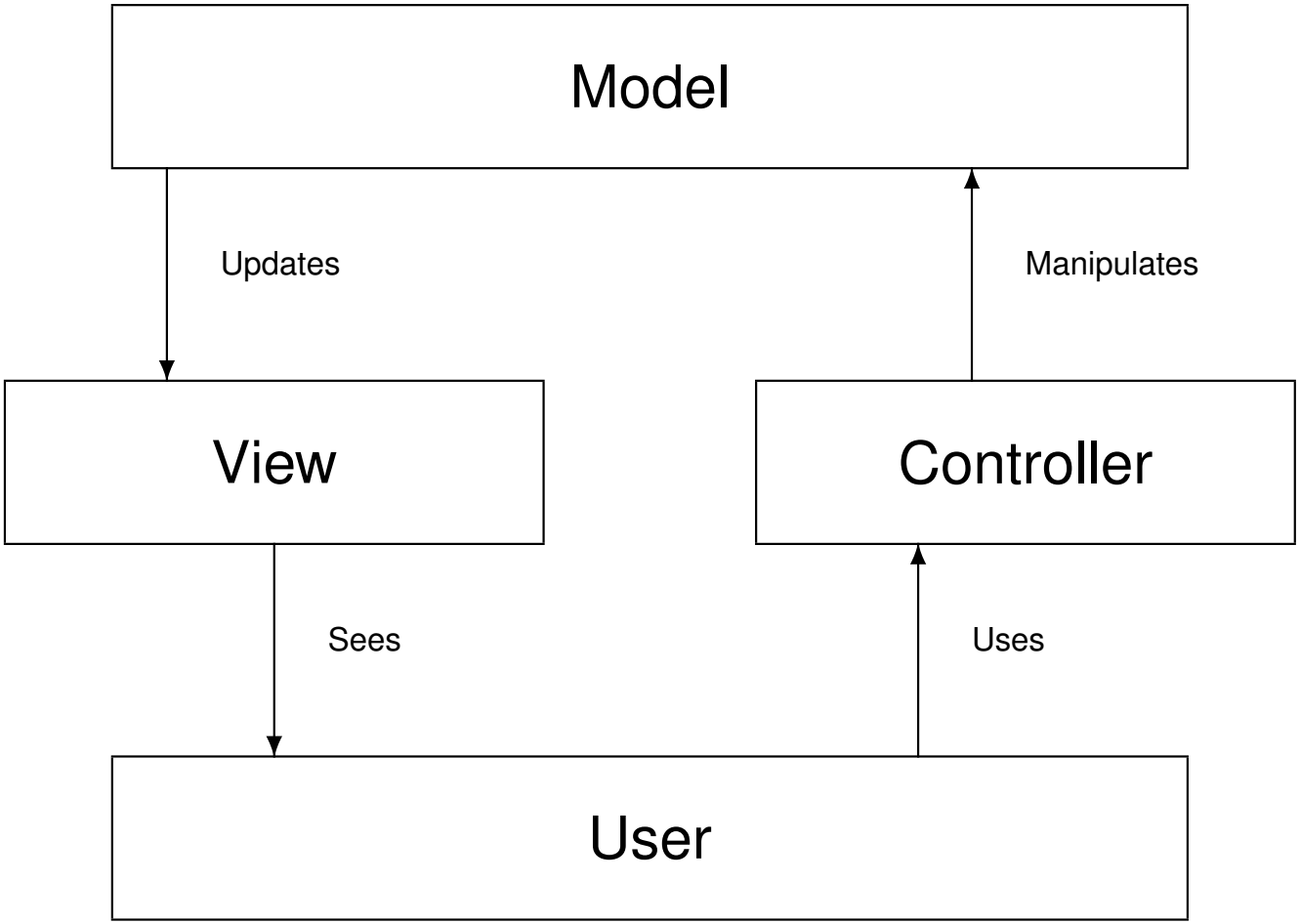
Sometimes it's useful to be able to see "both ends" of the data at the same time:



How does it work?

- Model-View-Controller paradigm.
- Lazy allocation of rows/columns.
- Composite widget architecture.

Model-View-Controller



MVC in SpreadsheetWidget

There are three models!

- A model for the data.
  - The contents of the cells.
- A model for the column metadata.
  - The width of the column.
  - The label to be displayed in the column header.
  - . . . other indicators.
- A model for the row metadata.
  - The height of the row.
  - . . .

The GtkTreeModel

The “row-inserted” signal

```
void
user_function (GtkTreeModel *tree_model,
GtkTreePath *path,
GtkTreeIter *iter,
gpointer user_data)
```

This signal is emitted when a new row has been inserted in the model.

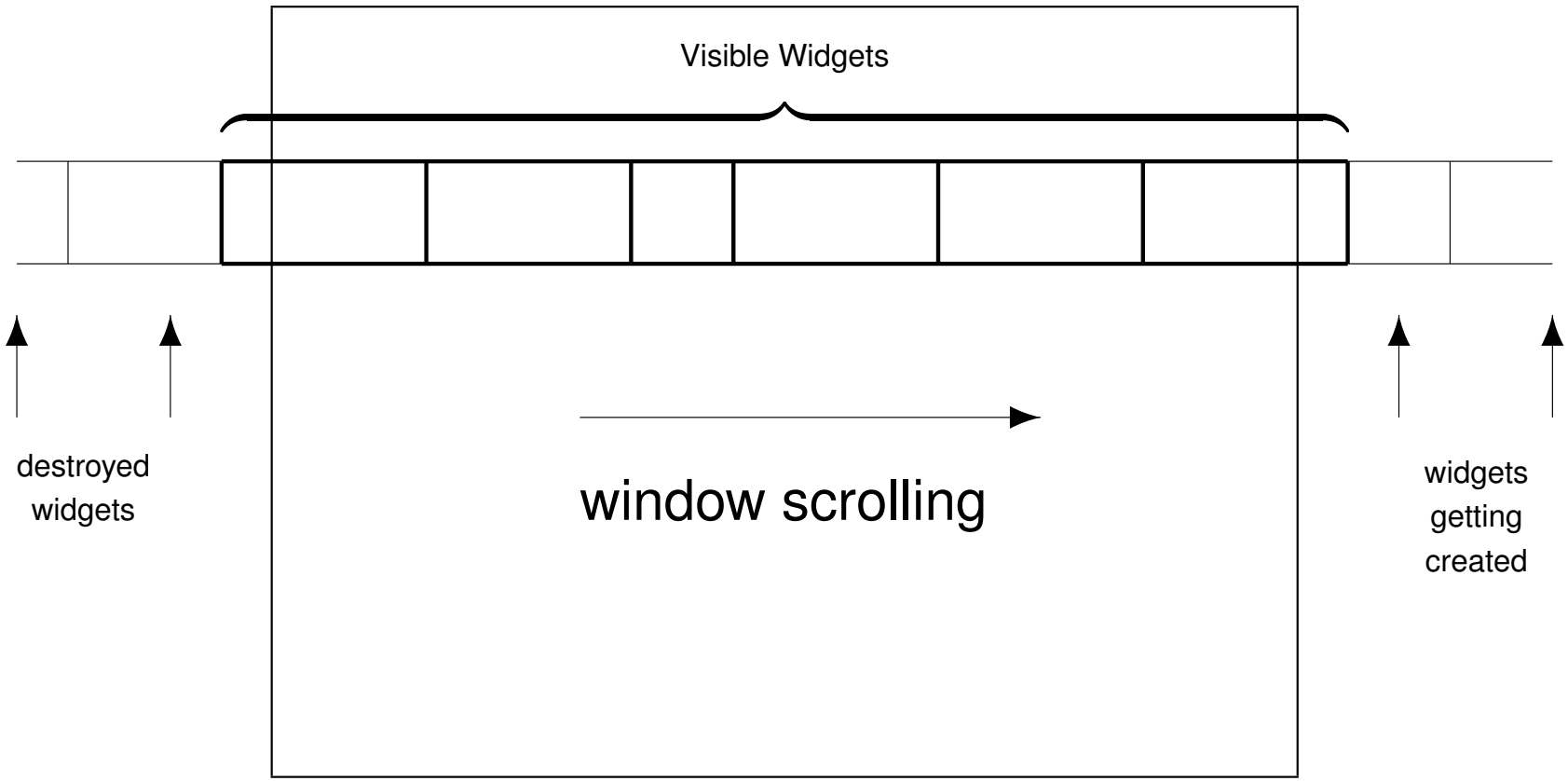
GListModel

The “items-changed” signal

```
void
user_function (GListModel *list,
guint position,
guint removed,
guint added,
gpointer user_data)
```

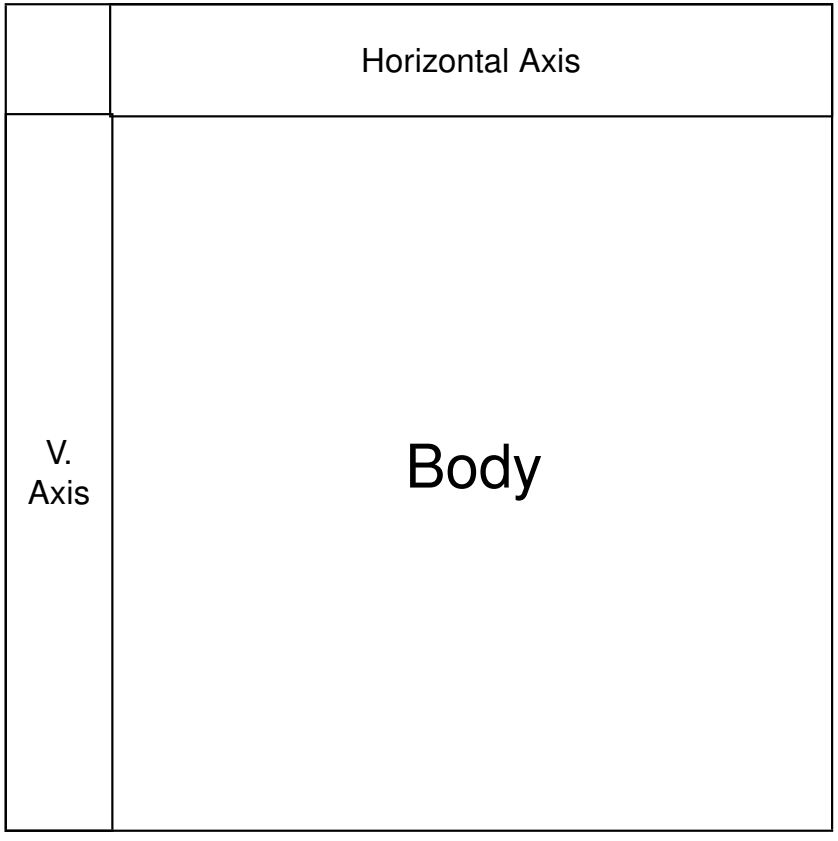
This signal is emitted whenever items were added or removed to list. At `position`, removed items were removed and added items were added in their place.

Lazy Allocation



Composite widget architecture . . .

SingleSheet (GtkGrid)



. . . Composite widget architecture

<table>
<tr><td colspan="2"></td><td>Scrollbar
axis</td><td>Scrollbar
axis</td></tr>
<tr><td>S.
bar</td><td>axis</td><td>SingleSheet0</td><td>SingleSheet1</td></tr>
<tr><td>S.
bar</td><td>axis</td><td>(axis off)
SingleSheet2</td><td>(axis off)
SingleSheet3</td></tr>
</table>

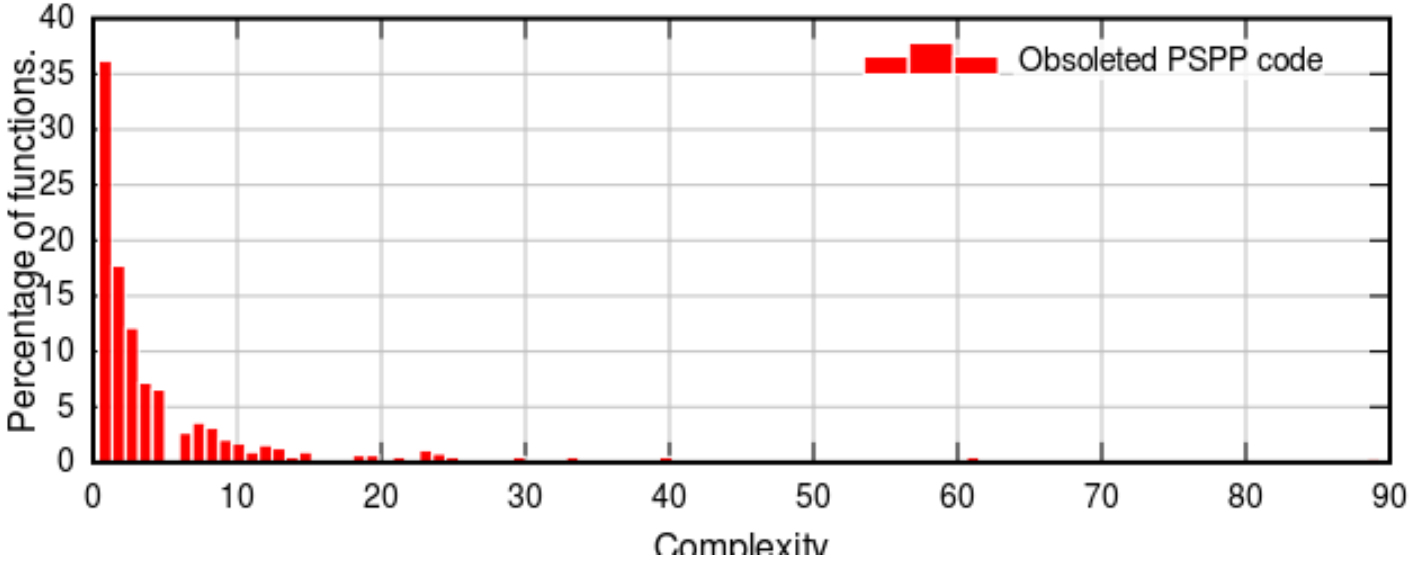
Extras

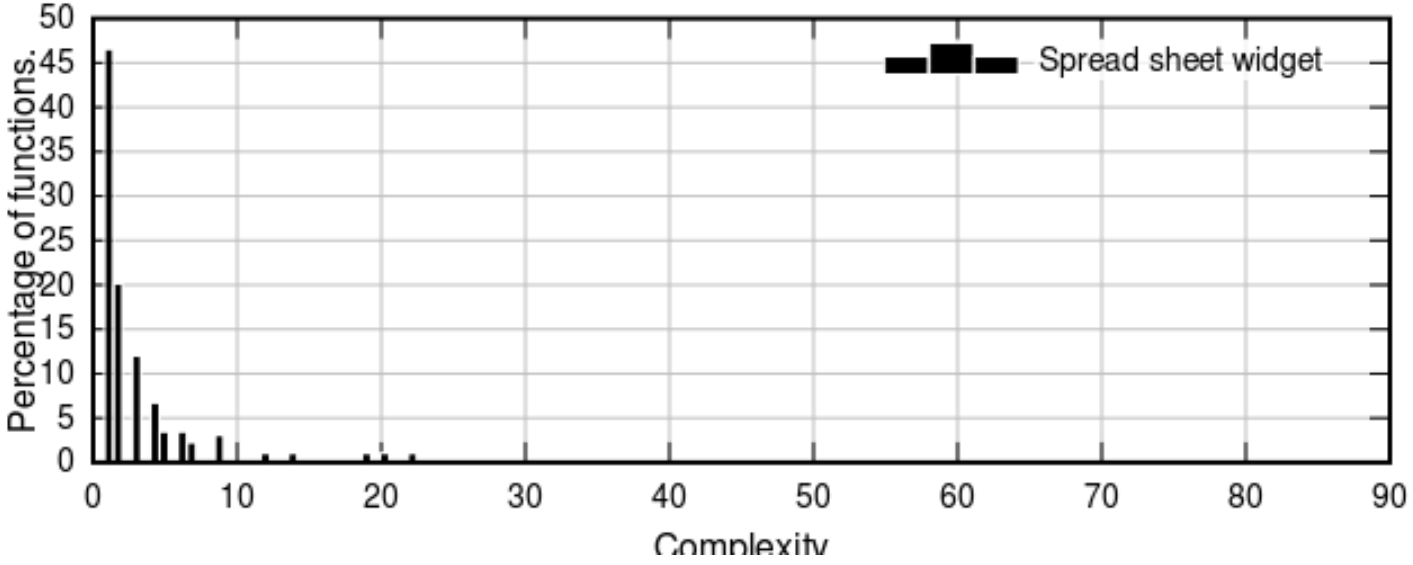
- Drag-n-drop
- Custom Cell Renderers
- Row Column Labeling

Statistics . . .

- 8120 lines of code.
- PSPP without spreadsheet-widget: 223,508
- PSPP with spreadsheet-widget: 199,987

. . . statistics
McCabe Complexity





To Do

- Documentation
- Tests.
- Utility functions.

For futher information...

http://www.gnu.org/software/ssw